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Amendment

flexing the flex-spline gear 31 and now also require the flexing means 16 to be attached at least in part to the flex-spline gear 31. Japan does not teach, suggest or describe this. The piezoelectric elements 11 of Japan are not attached, even in part, to his flake spline 20. Applicant's claimed design is more efficient than the design of Japan. As is understood by the artisan from Figure 2, Applicant's piezoelectric embodiment tangentially expands and contracts the appropriate piezoelectric members 48 to cause the flexible first annular member 42 to change between an unflexed circular shape and a flexed elliptical shape. This uses fewer parts than Japan which needs a stiff inner ring 10 for the piezoelectric elements 11 of Japan 16 to push radially against for such piezoelectric elements 11 to radially outwardly expand against the flake spline 20 and to radially inwardly contract from the flake spline 20 to cause the flake spline 20 to change between an unflexed circular shape and a flexed elliptical shape. It is noted that Applicant's piezoelectric embodiment gives more displacement to the flexible first annular member 42 for a given expansion/contraction of the piezoelectric members 48 than does Japan. Applicant's design also provides for easier assembly of the harmonic motor 10.

Claim 16 requires an array of spaced-apart, piezoelectric members 48 disposed on the inner circumference of the flex-spline gear 31. The piezoelectric elements 11 of Japan are not spaced apart and are not disposed on the inner circumference of his flexible flake spline 20 as required by Applicant's claim 31.

Claim 8 requires the flexing means 16 to include an array of spaced-apart, piezoelectric members 48 disposed on the inner circumference of the flex-spline gear 31. Claim 11 requires the flexing means 16 to include an array of spaced-apart, piezoelectric members 48 disposed on the inner perimeter of the first annular member 12. The piezoelectric elements 11 of Japan are not spaced apart and are not disposed on the inner circumference of his flexible flake spline 20 as required by Applicant's claims 8 and 11.

The examiner's rejection of claims 7, 9, 10, 12, 15 and 17 as being "obvious", under 35 U.S.C. 103, is respectively traversed. The examiner rejects these claims as being unpatentable over Japan in view of Tojo, Humphreys or Richter. Claims 7, 9, 10 and 12

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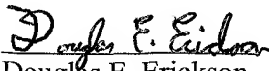
depend from claim 2, and Applicant's previous remarks concerning the patentability of claim 2 over Japan are herein incorporated by reference. Claims 7, 10 and 15 require an array of spaced-apart magnets 36 disposed on the inner circumference of the flex-spline gear 31 or on the inner perimeter of the flexible first annular member 12, and claims 9, 12 and 17 require an array of spaced-apart magneto-restrictive members 50 disposed on the inner circumference of the flex-spline gear 31 or on the inner perimeter of the flexible first annular member 12. Substituting electro-magnetic or magneto-restrictive transducer elements for the piezoelectric elements of Japan would still result in the electro-magnetic or magneto-restrictive transducer elements not being spaced-apart and not being disposed on the inner circumference of the flex-spline gear or on the inner perimeter of the flexible first annular member as required by Applicant's claims 7, 9, 10, 12, 15 and 17. It is noted that Japan, Tojo, Humphreys, and Richter each lack any nonrotatable flex-spline-gear flexing means disposed on the inner circumference of the flex-spline gear as required by Applicant's claims 7, 9, 10, 12, 15 and 17.

It is clear that the patents cited by the Examiner, taken alone or in combination, do not teach, suggest, or describe the subject matter of Applicant's claimed invention.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

Inasmuch as each of the rejections has been answered by the above remarks and amended claims, it is respectfully requested that the rejections be withdrawn, and that this application be passed to issue.

Respectfully submitted,


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Version with markings to show changes made

In the claims:

Claims 1, 2, 13 and 14 have been amended as follows:

1. (Amended) A harmonic motor comprising:

- a) a first annular member having a longitudinal axis, wherein the first annular member lies in a plane perpendicular to the longitudinal axis, and wherein the first annular member is flexible along a direction which lies in the plane;
- b) a second member substantially coaxially aligned with the first annular member and lying in the plane, wherein one of the first annular and second members is rotatable about the longitudinal axis, and wherein the other of the first annular and second members is nonrotatable about the longitudinal axis; and
- c) means for flexing the first annular member into at least two spaced-apart points of contact with the second member and for sequentially flexing the first annular member to rotate the at least two points of contact about the longitudinal axis which rotates the rotatable one of the first annular and second members about the longitudinal axis, wherein the flexing means is nonrotatable about the longitudinal axis and is attached at least in part to the first annular member.

2. (Amended) A harmonic motor comprising:

- a) a first annular member having a longitudinal axis, wherein the first annular member is nonrotatable about the longitudinal axis and lies in a plane perpendicular to the longitudinal axis, and wherein the first annular member is flexible along a direction which lies in the plane;
- b) a second annular member substantially coaxially aligned with the first annular member and lying in the plane, wherein the second annular member is rotatable about the longitudinal axis; and
- c) means for flexing the first annular member into at least two spaced-apart points of contact with the second annular member and for sequentially flexing the first annular member to rotate the at least two points of contact about the longitudinal axis which rotates the second

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annular member about the longitudinal axis, wherein the flexing means is nonrotatable about the longitudinal axis and is attached at least in part to the first annular member.

13. (Amended) A harmonic motor comprising:

- a) a harmonic-gear-train outer gear having a longitudinal axis;
- b) a harmonic-gear-train flex-spline gear having an inner circumference and disposed inside the outer gear, wherein one of the outer and flex-spline gears is rotatable about the longitudinal axis, and wherein the other of the outer and flex-spline gears is nonrotatable about the longitudinal axis; and
- c) means for flexing the flex-spline gear into two substantially diametrically opposite points of contact with the outer gear and for sequentially flexing the flex-spline gear to rotate the at least two points of contact about the longitudinal axis which rotates the rotatable one of the outer and flex-spline gears about the longitudinal axis, wherein the flexing means is nonrotatable about the longitudinal axis and is attached at least in part to the flex-spline gear.

14. (Amended) A harmonic motor comprising:

- a) a harmonic-gear-train outer gear rotatable about a longitudinal axis;
- b) a harmonic-gear-train flex-spline gear having an inner circumference, disposed inside the outer gear, and nonrotatable about the longitudinal axis; and
- c) means for flexing the flex-spline gear into two substantially diametrically opposite points of contact with the outer gear and for sequentially flexing the flex-spline gear to rotate the at least two points of contact about the longitudinal axis which rotates the outer gear about the longitudinal axis in a direction opposite the direction of rotation of the at least two points of contact, wherein the flexing means is nonrotatable about the longitudinal axis and is attached at least in part to the flex-spline gear.

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